

(No Model.)

6 Sheets—Sheet 1.

J. J. & L. C. FRANCIS.
WASHING MACHINE.

No. 606,131.

Patented June 21, 1898.

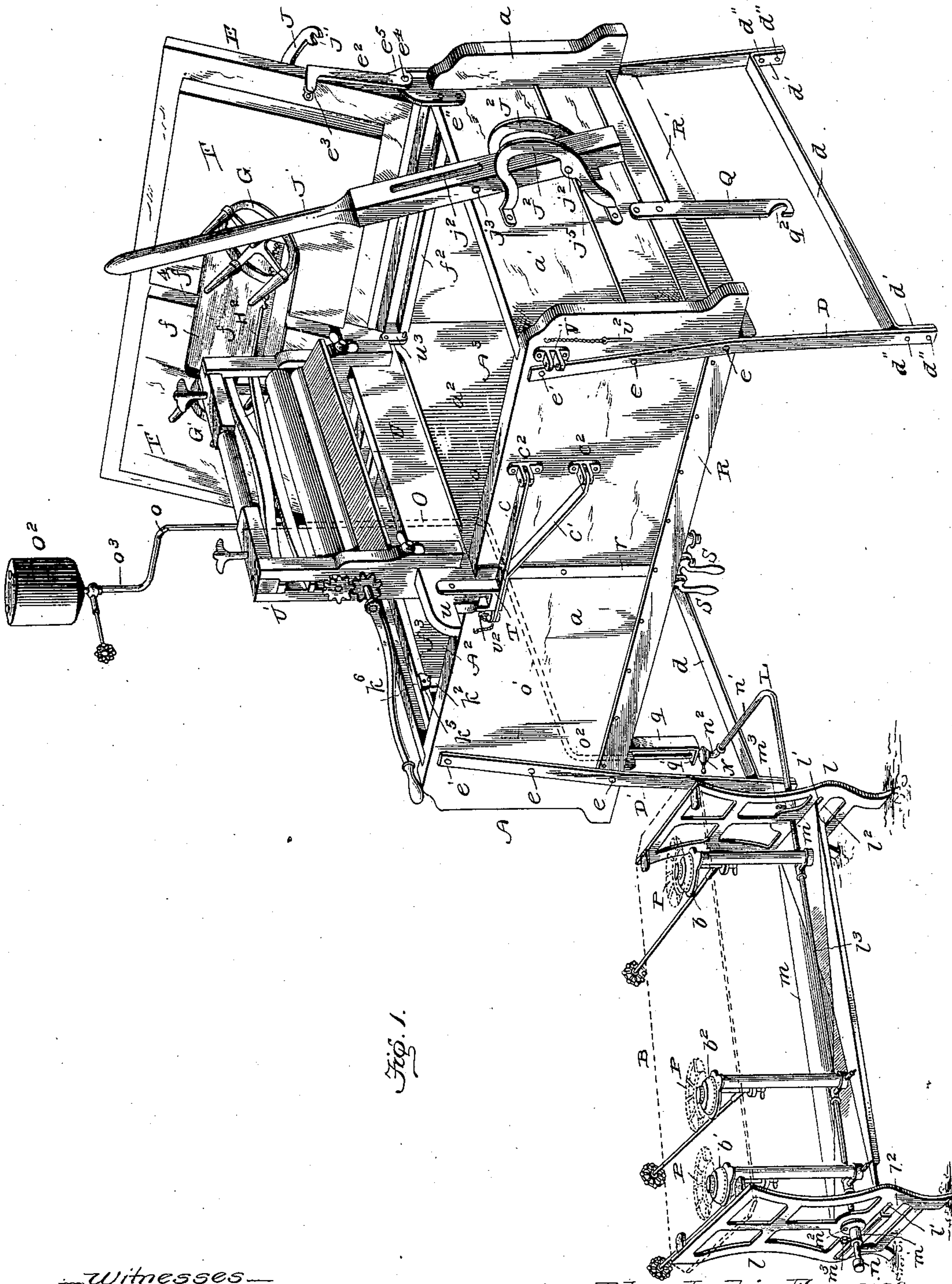


Fig. 1.

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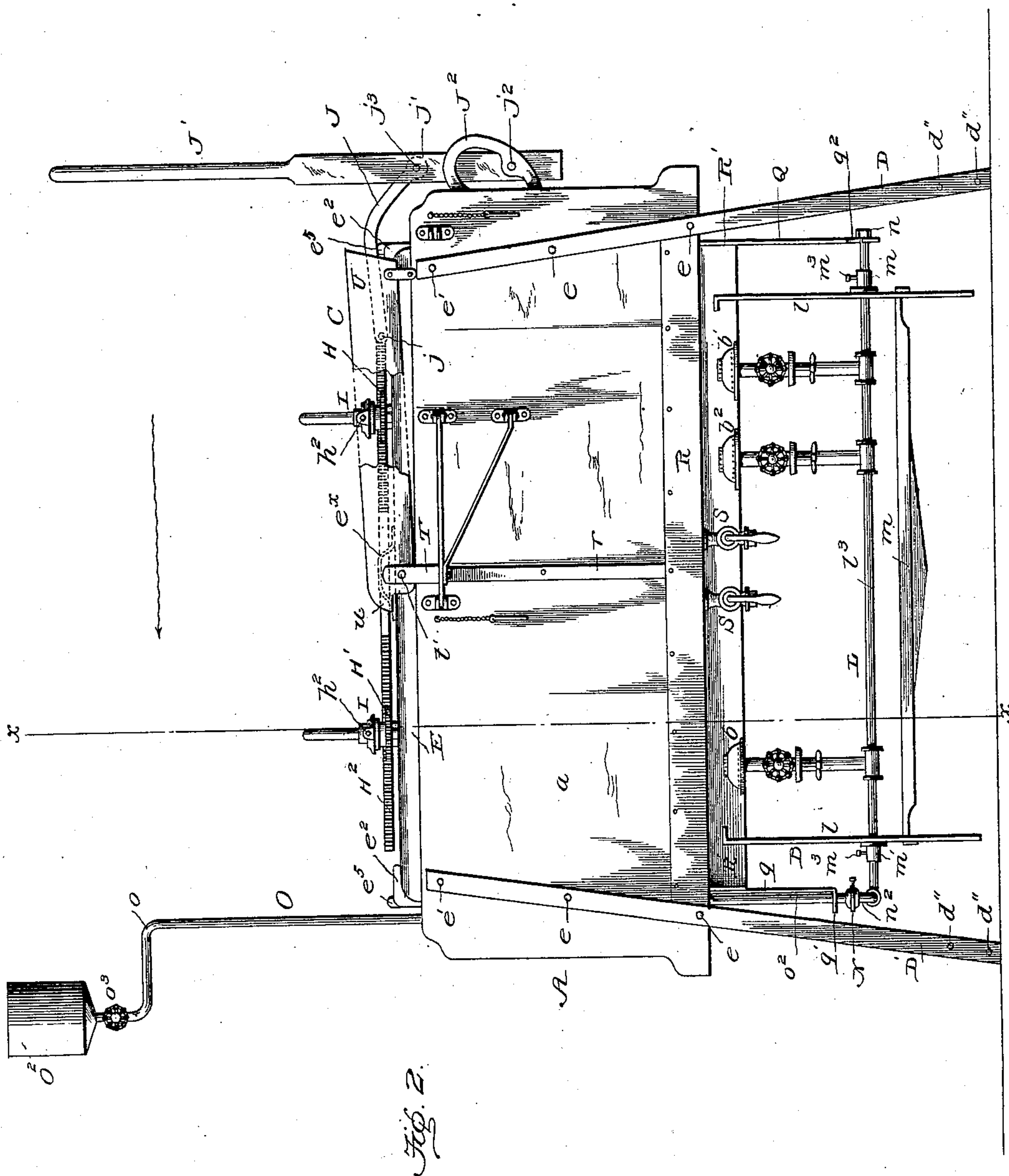
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6 Sheets.—Sheet 2.

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(No Model.)

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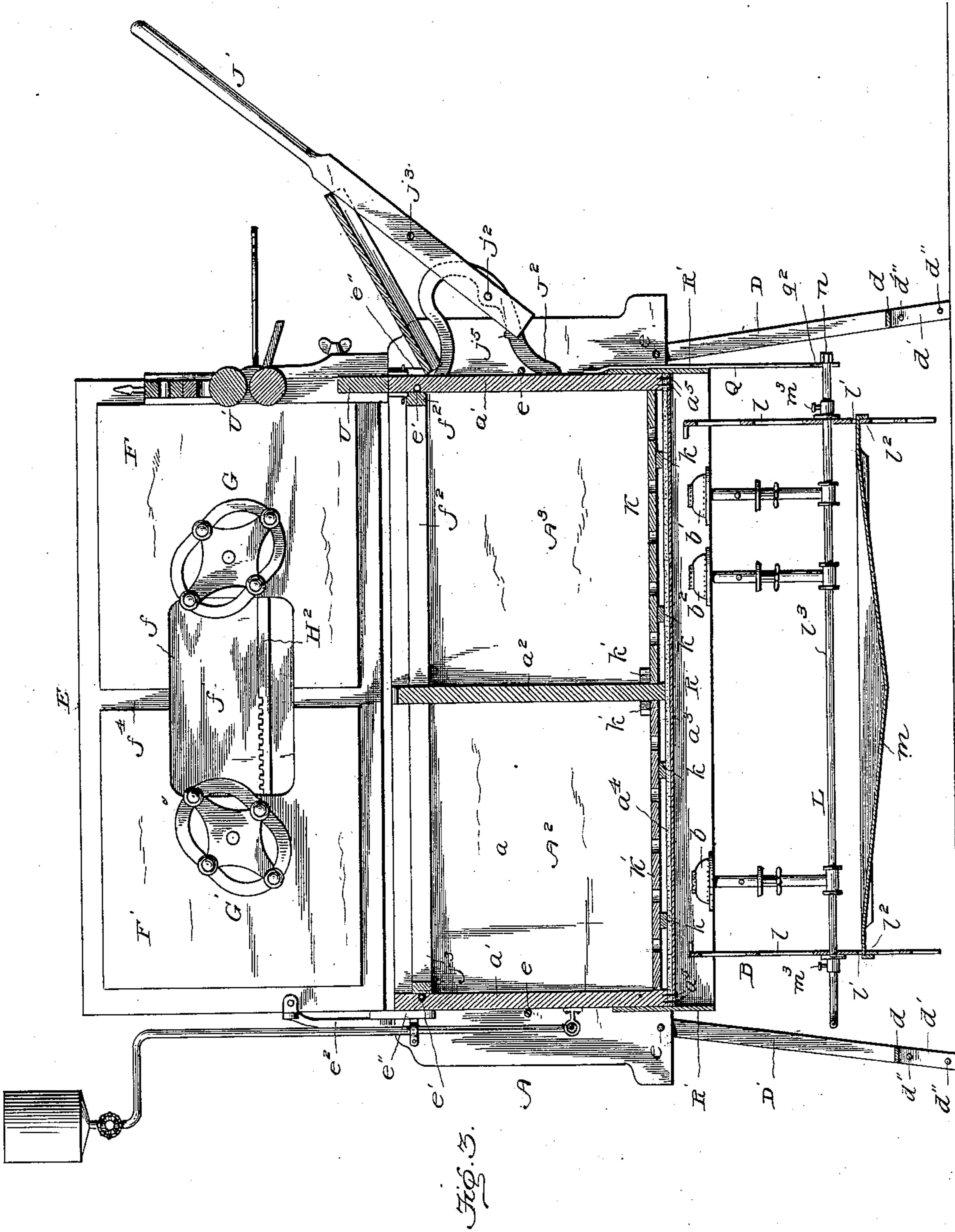


Fig. 3.

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— Louise Cummins Francis —
— Inventors —

— Witnesses —

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H. J. Berghard

— By — U. G. Swinell
— Att'y's —

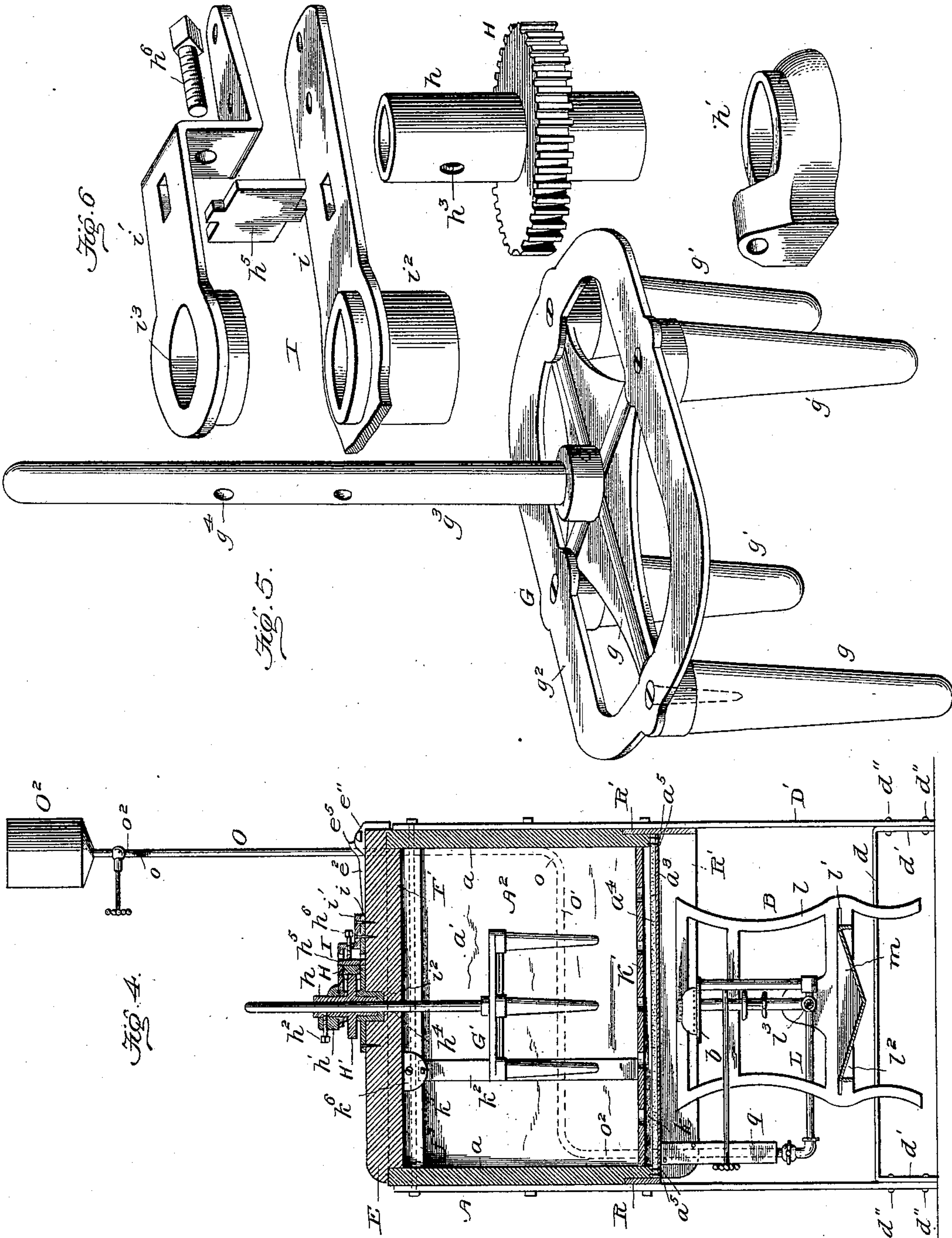
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6 Sheets—Sheet 4.

J. J. & L. C. FRANCIS.
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Witnesses—
Wm. Washburn
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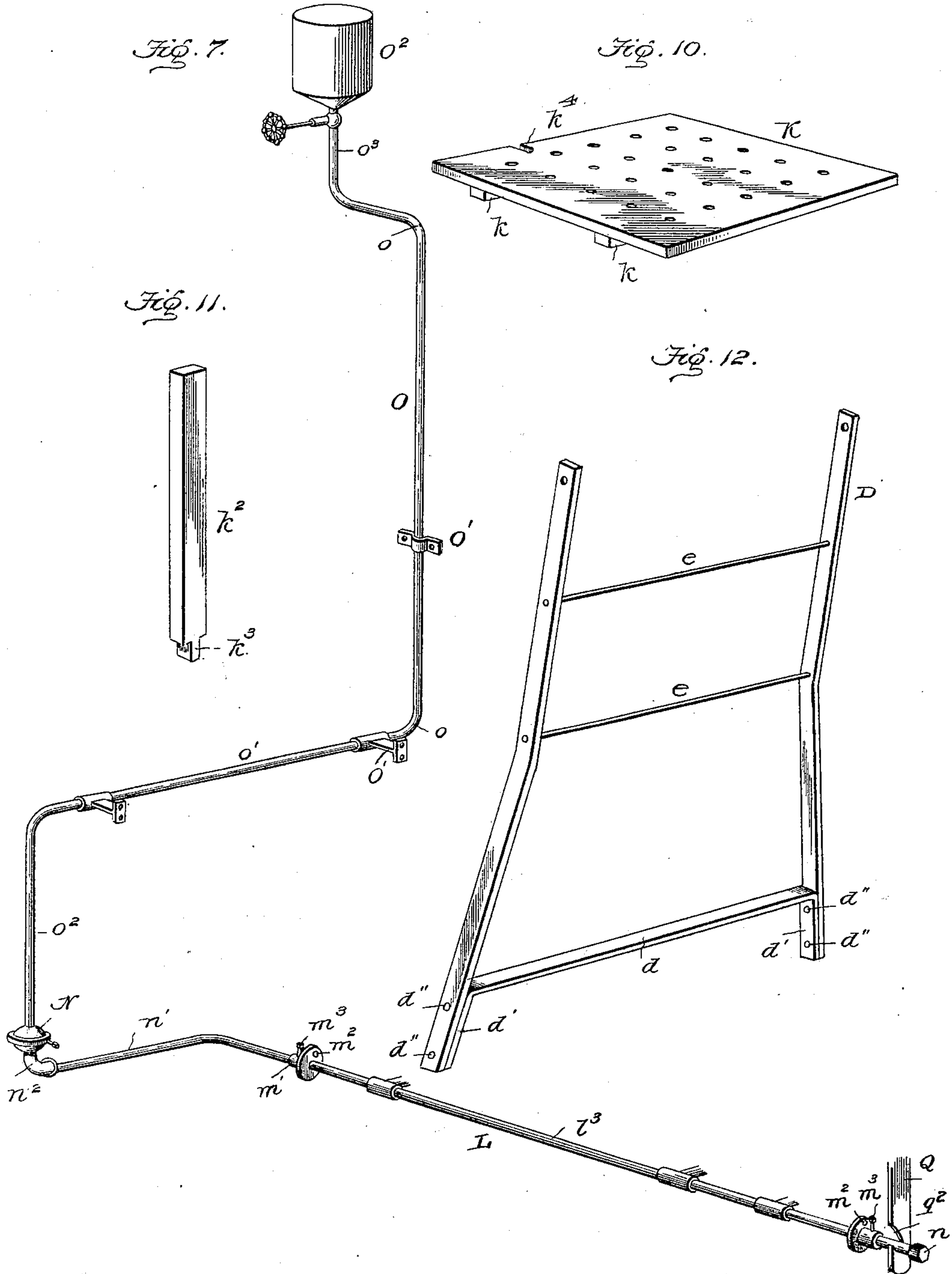
(No Model.)

6 Sheets—Sheet 5.

J. J. & L. C. FRANCIS.
WASHING MACHINE.

No. 606,131.

Patented June 21, 1898.



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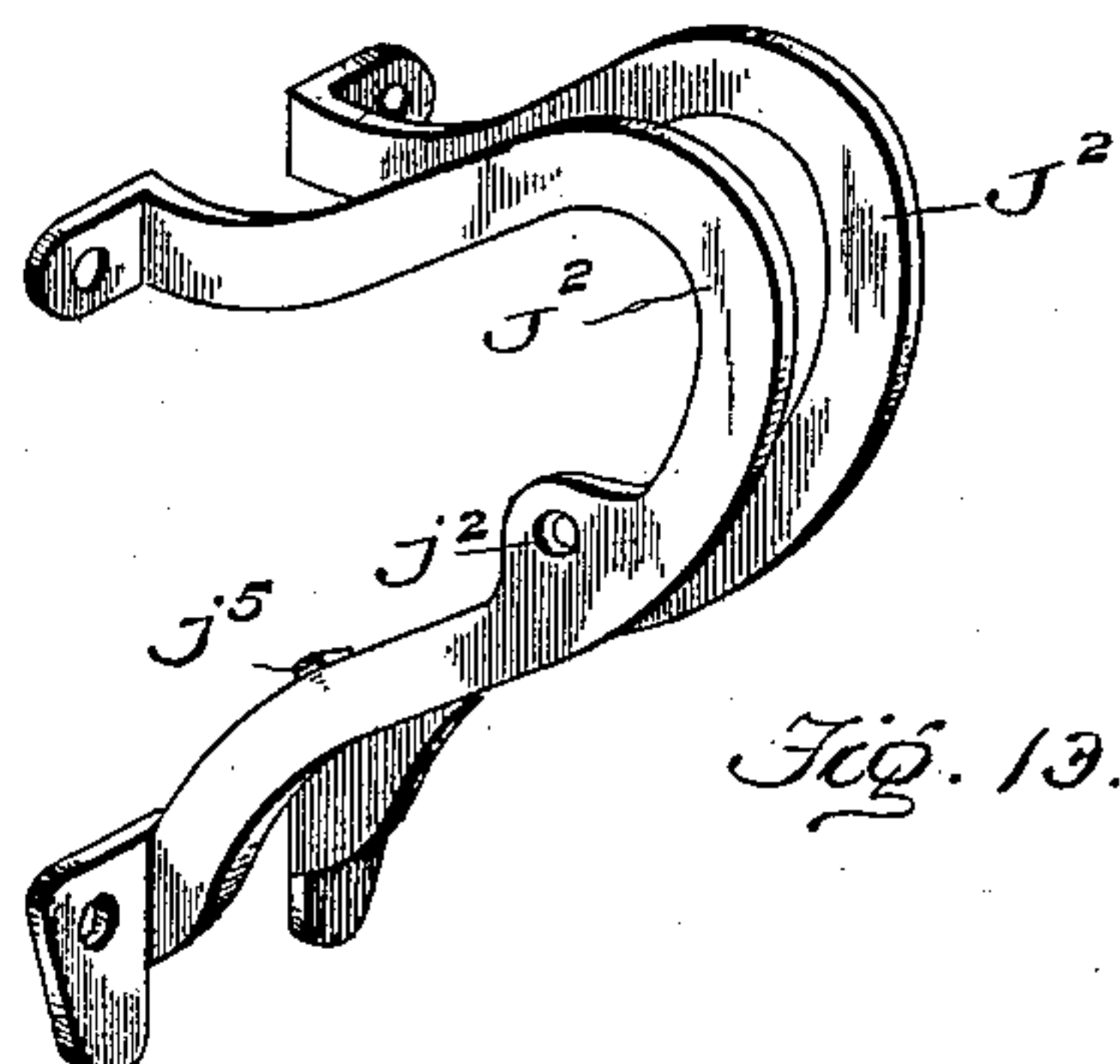
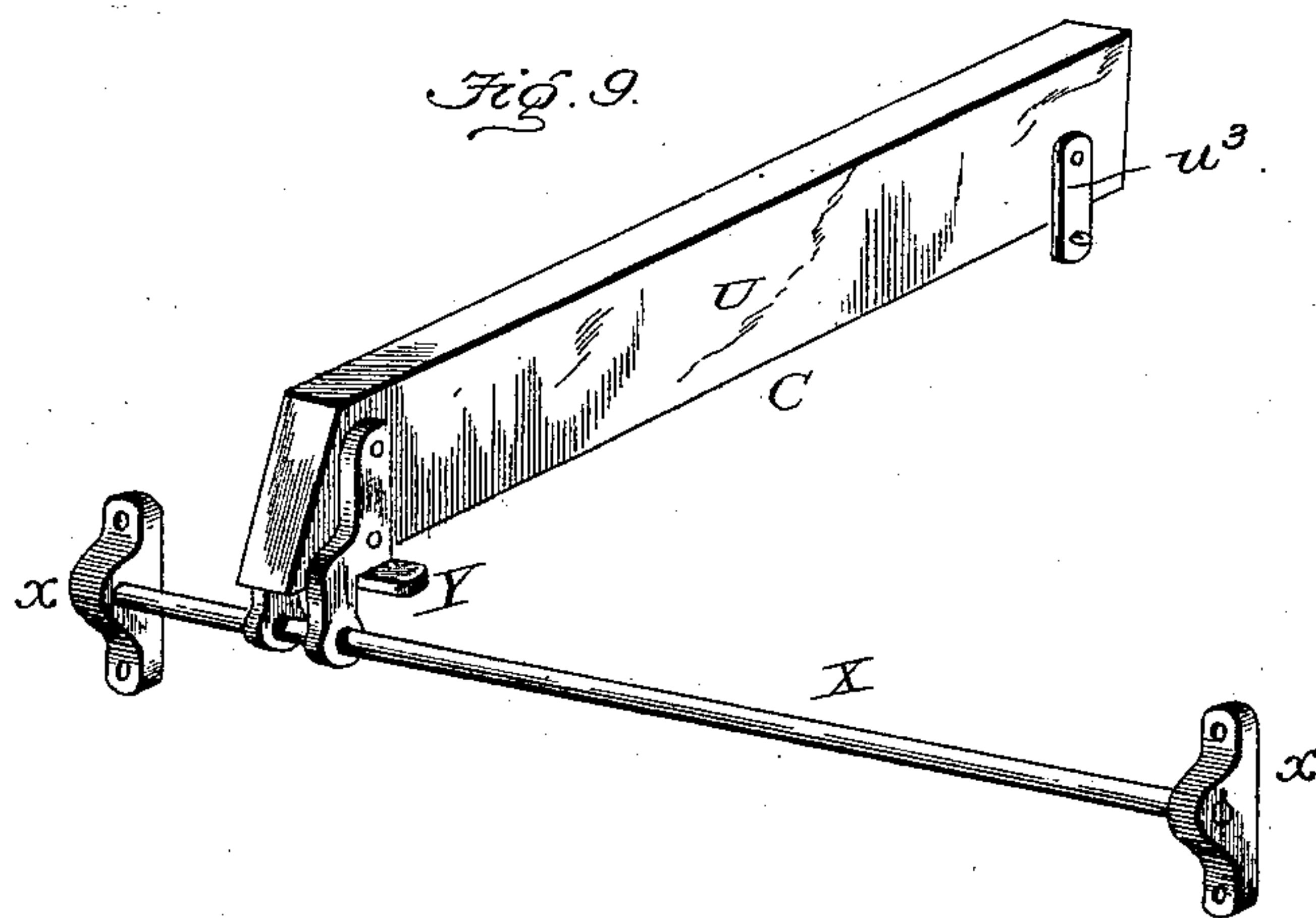
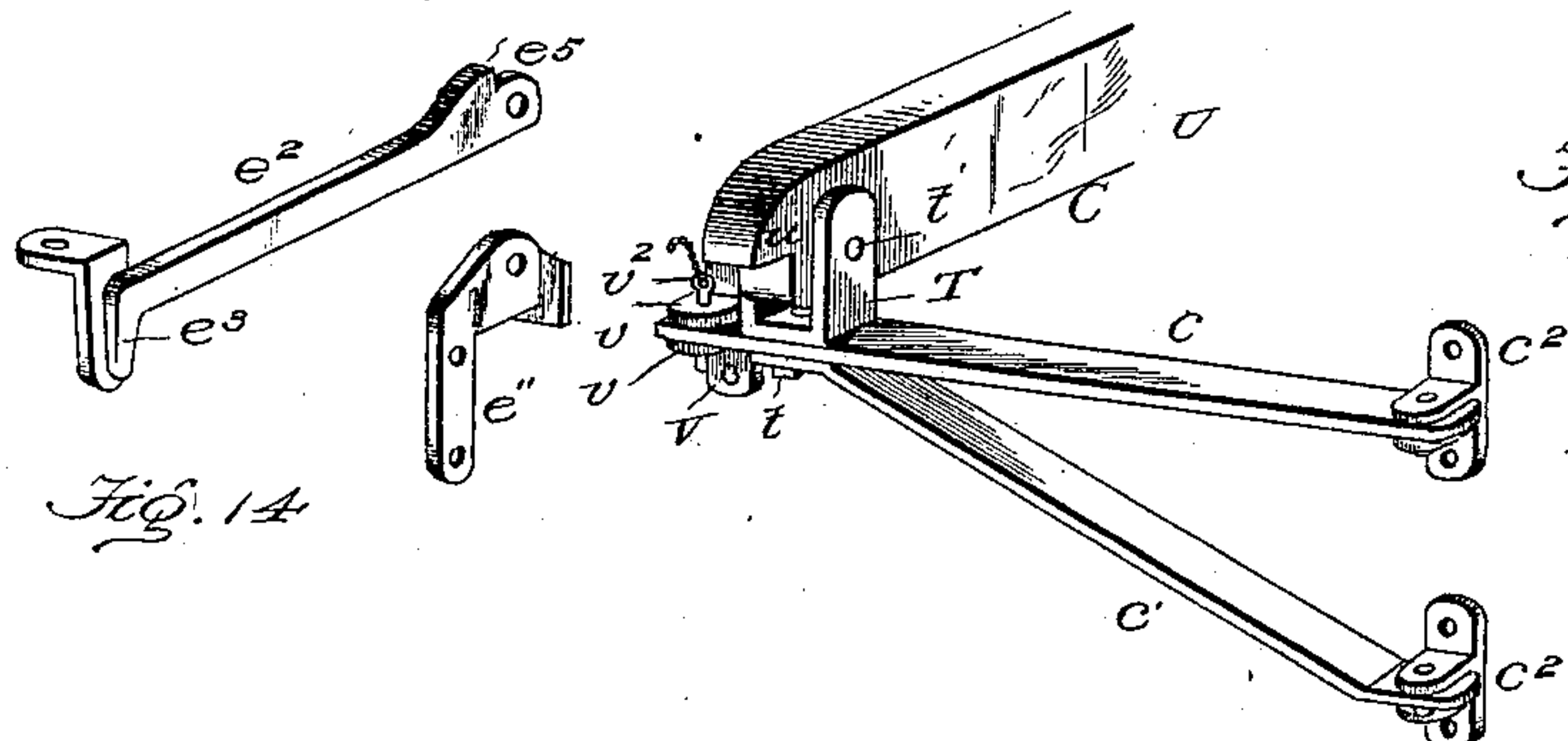
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6 Sheets—Sheet 6.

J. J. & L. C. FRANCIS.
WASHING MACHINE.

No. 606,131.

Patented June 21, 1898.



Witnesses—
Wm. C. Ashier
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Inventors

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UNITED STATES PATENT OFFICE.

JOHN JUNKIN FRANCIS AND LOUISE CUMMINS FRANCIS, OF CINCINNATI,
OHIO.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 606,131, dated June 21, 1898.

Application filed September 10, 1895. Serial No. 562,107. (No model.)

To all whom it may concern:

Be it known that we, JOHN JUNKIN FRANCIS and LOUISE CUMMINS FRANCIS, citizens of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Washing-Machines; and we do hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The nature of our invention is a washing-machine which combines in a single structure means whereby all of the operations or steps of treatment in cleansing fabrics may be accomplished on a single machine, thereby dispensing with separate washtubs, washboards, washboilers, detachable wringers, stoves for heating the water and the irons, and the like.

The object that we have in view is to provide a machine in which the labor and time required to perform an ordinary family washing are reduced to a minimum without requiring the operator to directly handle the fabrics or immerse the hands in the water to rub the clothes.

Clothes washed in our improved machine are rapidly and thoroughly cleansed from all dirt and stains, are free from soapy odors, and present a pure white and wholesome appearance.

The leading features of our improved washing-machine consist, first, of a receptacle constructed in a simple and substantial manner to withstand heat and rough usage and provided with a partition which divides the receptacle in two compartments or tubs; secondly, a heater, preferably adapted for consuming a hydrocarbon fluid, such as gasoline, arranged below the receptacle and constructed with burners of different heat-generating capacity, one burner adapted to heat the water in one compartment up to a boiling temperature and the other burner to heat the water in the other compartment to such a temperature as to enable it to wash the fabrics in the ordinary way, such heater being so combined with the machine that it may be turned or swung outwardly from beneath the receptacle to stand at a right or other angle thereto and without detaching the heater

from the machine, whereby the heater may be used for heating irons, cooking, or for other domestic purposes, and, thirdly, a clothes-wringer appliance which is adjustably combined with the divided tub and which is arranged to sustain or carry the weight of the wringer, such wringer appliance being capable of adjustment over the central partition to enable it to be used for wringing the fabrics out of the washing-compartment into the boiling-compartment, and also adapted to be adjusted over one end wall of the receptacle for the purpose of wringing the clothes out of the boiling-compartment into a tray, all of which adjustments may be quickly effected without detaching the wringer from the machine and without fatigue or taxing the strength of the operator.

With these and such other objects in view as pertain to our invention it consists in the combination of devices and in the novel construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand our invention, we have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of our washing-machine, showing the lid raised, the wringer attachment in position over the middle partition, and the stove or heater swung out to adapt it for use in heating irons, &c. Fig. 2 is a front elevation of the machine with the wringer out of position and the heater adjusted beneath the receptacle. Fig. 3 is a longitudinal sectional view through the machine with the heater adjusted beneath the receptacle and with the wringer adjusted at the end of the receptacle. Fig. 4 is a vertical transverse sectional view through the machine on the plane indicated by the dotted line *x x* of Fig. 2. Fig. 5 is a detail view of the agitator. Fig. 6 is a detail view of the sectional clamp in which the agitator-shaft is fitted. Fig. 7 is a detail view of the preferred form of stove or heater which we have invented, showing the form of the horizontal pipe, the vertical pipe, and the swiveled coupling between said pipes, also showing the hangers by which the stove is suspended be-

neath the receptacle. Fig. 8 is a detail detached perspective view of the preferred form of the adjustable wringer attachment, the parts being separated to more clearly illustrate their construction. Fig. 9 is a view of a modified construction of the adjustable wringer-support. Fig. 10 is a detail view of the perforated false bottom for use in the compartments of the receptacle. Fig. 11 is a detail view of the removable locking-bar to hold the false bottom in place. Fig. 12 is a detail view of one pair of legs to support one end of the receptacle. Fig. 13 is a detail view of the brackets in which the handle-lever is to be fulcrumed. Fig. 14 is a detached view of the stop-hinge by which the cover is hung to the receptacle.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A designates the receptacle. B is the adjustable heater or stove, and C is the adjustable wringer-support.

Our improved washing-machine is constructed to utilize the well-known principle that textile fabrics like most other substances expand under the influence of heat and contract when subjected to cold water. By immersing the fabrics in water of increasing temperature the pores or interstices of the fabric are opened and the dirt, softened or loosened by soap, is then easily shaken out and removed by agitation without in any way rubbing the fabrics, either by hand or mechanically. On the other hand, any lowering of the temperature of the water, either by gradually cooling of the water or by pouring cold water into the tub, causes the clothes to contract and retain the dirt.

We combine the heater B with our receptacle in order to heat the water economically and rapidly, to have the heater readily accessible and under the control of the operator, and save the time and labor of heating the water on a separate stove and transporting it to the machine. We also construct the receptacle A partly of wood and partly of metal for economy in manufacture, lightness in weight, and durability, and said receptacle is constructed in a novel way to resist the action of heat from the stove B and prevent the heat from charring the wooden walls of said receptacle. The receptacle consists of the side walls a a , the end walls a' a' , the transverse central partition a^2 , and the metallic bottom a^3 . The walls a a' and partition a^2 are preferably made of wood and the bottom a^3 of galvanized sheet-steel. The side walls a a are provided near their ends with vertical grooves, in which are fitted the end edges of the walls a' , and said side walls are also provided with central grooves to receive the edges of the middle partition a^2 , each end wall having near its top edge a horizontal groove for a purpose to be explained. The receptacle is supported at each end by a pair of legs D D', preferably made of strong bars

of metal. The legs of each pair D D' are bent somewhat below the tub A, and they are braced at their lower bent ends by the metallic cross-bar d , the ends of which cross-bar are bent to form the angular ends d' , which are fitted against the opposing sides of the legs D D' and are fastened to the legs by the short bolts or screws d'' , thereby presenting a strong structure. The upper ends of each pair of legs are fitted against the outside of the side walls a a of the receptacle, and the legs are fastened to the receptacle by means of the tie bolts or rods e e e' . The upper tie-bolt e' passes through the legs D D', side walls a a , and through the horizontal groove in the inner side of the end wall a' of the receptacle; but the tie-bolts e e are arranged outside of the end wall a' of the receptacle, the bolts e e passing through the legs and through the projecting ends of the side walls a a , as shown by Fig. 3, each of said tie-bolts having a head at one end and a nut screwed on its threaded end. In building the receptacle the grooves in the side walls a a are filled with a binding waterproof composition, preferably white lead, the walls a a a' a' and partition a^2 are assembled and properly fitted together, the legs are adjusted to the outside of the side walls, and the tie-bolts are fitted and the nuts thereon screwed up tightly, thereby binding all the parts securely together and securing water-tight joints where the walls are joined together. The metallic bottom a^3 is fastened to the lower edges of the walls a a' a^2 of the receptacle in a manner to provide water-tight joints and protect the wooden walls from being charred by the heat from the stove B, and to the accomplishment of these ends we provide a strip or layer of asbestos a^4 , which has been dipped in or saturated with white lead. Said strip or layer a^4 is interposed between the metallic bottom a^3 and the lower edges of the wooden walls, and the parts are united by strong barbed nails a^5 , which are driven in alternating rows through the metallic bottom a^3 , the asbestos strip a^4 , and into the walls a a' a^2 , thereby securing the parts together in a simple, strong, and durable way.

E designates the lid or cover of the divided receptacle A, said lid being hinged at one of its longitudinal side edges to one of the side walls of the receptacle and having a lift or pull handle e fastened to its upper side near the free edge thereof. Each hinge, two of which are provided, consists of two cast-metal parts e'' e^2 , one of which, e'' , is of curved form to fit over the top edge of the rear side wall a and against the end wall a' , to which walls the hinge member e'' is securely fastened by screws. The other hinge member e^2 has a forked end fitted over the edge of the cover E and screwed thereto, said forked end having an angular pendent lug e^3 , that fits against the outside of the end wall when the cover is closed down upon the receptacle. The member e'' , which is fastened to the re-

ceptacle, rises above the rear side wall a for a suitable distance, and against it is fitted one end of the other member e^2 , the parts being pivotally joined by the pivotal bolt e^4 .

5 The member e^2 has its pivotal enlarged end formed with a stop-shoulder e^5 , which when the lid is raised to an inclined position beyond the perpendicular is adapted to abut against the upwardly-projecting edge of the member e'' , and thereby arrest the opening movement of the lid and assist in holding the lid in the opened position. This lid or cover

10 E is made with a view-slot f at its middle, over which slot is fitted a heavy pane of glass f' , whereby the operator is enabled to look into the divided receptacle to ascertain the condition of the fabrics. The lid or cover E is reinforced and prevented from warping under the influence of the heat and moisture

20 arising from the divided receptacle A by the lining F F', which consists of two pieces of wood united to the inner surface of the wooden cover, with the grain of the wood lining running across or at right angles to the grain of the wooden cover. These lining-pieces F F'

25 are recessed at their inner ends and are so arranged on the cover that their recessed ends do not obstruct the view-slot f , and said lining-pieces are smaller than the cover, so that

30 they may fit into the compartments of the receptacle when the lid is closed. The lid is hung so that it may rest squarely and solidly upon the top edges of the receptacle, and the lining F F' fits upon cleats $f^2 f^3$, fixed to the

35 inside of the side and end walls of the receptacle a suitable distance below the top edges thereof, thus forming practically tight joints between the receptacle and its cover to prevent to a great extent the escape of steam

40 from the receptacle. The cleats f^3 , which are fastened to the end walls a' of the receptacle, are arranged over the horizontal grooves in the said end walls a' in order to conceal and protect the tie-bolts e' , which are fitted

45 in said grooves of the end walls. The inner adjacent ends of the lining-pieces F F' do not abut or come in contact, but are spaced apart to form a notch or slot f^4 , extending transversely across the inner surface of the cover,

50 so that when the cover is lowered the notch or slot f^4 receives the upper edge of the middle partition a^2 .

It will be observed that the partition a^2 divides the receptacle A into two non-communicating compartments or tubs, which we have

55 designated by the letters $A^2 A^3$, in one of which receptacles, A^2 , the ordinary process of washing is performed, while in the other compartment A^3 the operation of boiling or steaming the clothes is effected. We shall hereinafter call the compartment A^2 the "washing-tub" and the compartment A^3 the "boiling" or "steaming" tub for the sake of

60 clearness. In these tubs or compartments $A^2 A^3$ are provided the agitators G G', which are substantially the same in construction, so that a description of one agitator will answer

equally well for the other. Each agitator consists of the spider g , having a plurality of arms, preferably four in number, a series of

70 pins g' , the cap ring or plate g^2 , and the spindle or shaft g^3 . The arms of the spider have sockets cast on their outer ends, in which sockets are tightly fitted the upper ends of the pins g' , and on top of the spider is fitted

75 the cap ring or plate g^2 , the latter having apertures formed therein at points to lie over the pin-sockets, whereby screws may be passed through the apertured cap-ring and into the wooden pins g' in order to secure the cap-ring

80 and the pins to the spider g . The spindle or shaft g^3 has its lower end soldered and headed to the center of the spider g , and this spindle or shaft extends upwardly from the spider a suitable distance, the spindle having two or

85 more notches g^4 formed therein.

The spindles $g^3 g^3$ of the two agitators pass through openings $h^4 h^4$, provided in the cover E, said agitators being arranged in the middle of the tubs $A^2 A^3$ of the receptacle. The

90 two agitator-spindles are clamped in the gears H H', which are actuated from a slidable rack-bar H^2 , which is common to both and meshes with both of the gears H H', whereby the two gears and the agitators are actuated simulta-

95 neously from a common source of power.

Each gear H or H' and the spindle of each agitator is upheld and supported by a clamp I, two of which clamps are provided on the

100 cover E, one for each gear and agitator. The clamp or support for each gear is made in two parts $i i'$, the former part or member i being in the form of a flat apertured plate having a perforated pendent boss i^2 and the

105 other member i' being formed of a bent or angular plate which is adapted to lie upon the member i' to overhang the gear and to serve as a guide for the slidable rack-bar H^2 . The lower member i of the clamp or support

110 is fitted flat down upon the cover E, and its pendent perforated boss i^2 fits in one of the openings h in said cover, this boss serving as a journal for the short tubular shaft of the gear H or H', because the short shaft of gear

115 is fitted in said boss i^2 . The upper member i' of the clamp or support I has one end fitted flat down on the plate or member i , and said parts $i i'$ are fastened together and to the cover E by screws, which pass through aligned

120 holes in the two plates or members $i i'$ and into the cover E. The overhanging end of the angular upper member i' is enlarged and formed with an eye or opening i^3 . The gear is provided with the short tubular shaft h ,

125 which is rigidly united centrally to the gear and which projects a short distance from each side of the gear. This gear is fitted between the upper and lower plates $i i'$ of the clamp or support, and the lower end of the short tubular shaft h fits or is journaled in the boss

130 i^2 of the lower member i , while the upper end of the tubular gear-shaft h fits in the eye i^3 at the free overhanging end of the upper member i' of said clamp or support. The

gear is thus rotatably journaled in the two-part clamp, and through the tubular shaft h of said gear is passed the spindle or shaft g^3 of the agitator. This agitator-spindle and the gear are coupled together for simultaneous rotation by means of the coupling-cap h' , which is fitted over the upper end of the shaft h to rest upon the overhanging eye-formed end i^3 of the upper clamp member i' , said coupling-cap being provided with a threaded socket in which is screwed a binding-screw h^2 , that passes freely through an opening or slot h^3 in the tubular shaft h and adapted to fit in one of the notches g^4 in the agitator-spindle g^3 . It will be noted that the binding-screw h^2 serves to hold the cap h' , the slotted tubular gear-shaft h , and the agitator-spindle g^3 rigidly together, so that the agitator will turn with the gear, and as the coupling-cap h' rests upon the clamp member i' the agitator is suspended in the receptacle by the cap h' , its binding-screw h^2 , and the clamp member i' . The agitator may be adjusted vertically within the receptacle by sliding its spindle g^3 through the tubular shaft h of the gear until the agitator is at the proper height, and then the screw h^2 is operated to force its point into one of the notches g^4 in the spindle g^3 , thus holding the agitator-spindle rigidly coupled to the gear H or H' .

The rack-bar H^2 rests upon the lower members $i i$ of the two spaced clamps $I I$ on the top of the lid E , and its cogs or teeth are arranged to mesh with the teeth of the two gears $H H'$. The rack-bar is held in proper relation to the gears by means of the adjusting wear-plates $h^5 h^5$, which are slidably fitted between the rear neutral side of the rack-bar and the offset or bent parts of the upper clamp members $i' i'$, the upper ends of said plates h^5 being fitted in slots formed in said clamp members $i' i'$ and the positions of the plates relative to the rack-bar being determined by the adjusting-screws h^6 , which work in tapped openings provided in the angular portions of the clamp members $i' i'$. To one end of this rack-bar is connected a pitman J , the joint between the bar and pitman being a pivotal one, effected by the bolt j . This pitman is bent or made angular, and at its free end it has a notch j' provided in its lower edge. Said pitman is loosely and detachably connected to the handle or lever J' , the latter having a longitudinal slot j^2 and a transverse bolt or pin j^3 . The notched end of the pitman is fitted in the slot j^2 and is dropped over the pin or bolt j^3 , thus permitting the pitman to be easily and quickly detached from the lever J' when it is desired to lift the cover E , and with it the agitators, the gears, the rack-bar, and the pitman, as shown by Fig. 1. The lever J' is fitted and guided between the brackets $J^2 J^2$, each cast in a single piece. These brackets are rigidly fastened to one end wall of the receptacle and are arranged parallel to each other, and the lever J' is fulcrumed near its lower end on a

pin or bolt j^4 , which passes through an opening in the lever and is supported in the brackets J^2 . These brackets are provided on their opposing faces and below the fulcrum j^2 with lugs j^5 , integral with the brackets and arranged in the path of the lower end of the lever, so as to limit the downward movement of the upper end of the lever and prevent it from dropping out of operative position when the pitman is detached therefrom. When the lever is shoved inward toward the machine, the rack-bar H^2 is moved to actuate both gears $H H'$ and turn both agitators $G G'$ a certain distance, and as the lever is drawn back the rack-bar reverses the rotation of the gears and the agitators, whereby the agitators are caused to stir up the contents in both tubs $A^2 A^3$ of the receptacle.

The sediment and dirt eliminated from the fabrics during the operation of the machine are not permitted to remain in the water used in the tubs $A^2 A^3$ for subsequent washing of the fabrics. As is well known, this sediment is heavier than water and precipitates itself to the bottom of the receptacle. In our machine we provide the tubs $A^2 A^3$ with the perforated false bottoms $K K'$, which are fitted snugly in the tubs near the bottoms thereof. Each perforated false bottom has cleats k on its under side, which cleats are adapted to rest upon the metallic bottom a^3 of the receptacle, and each false bottom is held in place by the fixed cleats k' and by the removable locking-bar k^2 . The cleat k' is fastened to the partition a^2 near the lower rear corner of the tub A^2 or A^3 , and the locking-bar k^2 is arranged in a vertical position near the opposite edge or corner of the false bottom and the tub in which said bottom is located. Said locking-bar has a squared tenon k^3 , and its lower end is adapted to fit in a notch k^4 , provided in one edge of the false bottom, so that shoulders formed on the lower end of the bar by the tenon will rest upon the false bottom and prevent it from lifting up. This locking-bar is fitted against one end wall a' of the receptacle, and its squared end lies in a notch k^5 , cut in the lower edge of the fixed rail f^3 , so that the locking-bar cannot be lifted vertically out of place, and it operates efficiently to hold the false bottom against upward movement. The locking-bar k^2 is held against horizontal displacement by means of a catch k^6 , which consists, preferably, of a cast piece of metal eccentrically hung or pivoted to the rail f^3 to lie over the upper end of the bar k^2 and the notch k^5 in the fixed rail f^3 . To remove the false bottom when it is desired to cleanse the bottom a^3 , the latch k^6 is raised, the upper end of the bar k^2 drawn horizontally out of the notch k^5 , the bar then lifted out of the tub, and the false bottom raised, so as to clear the cleat k' . In adjusting the false bottom it is placed in the tub so that one corner fits beneath the cleat k' , and its cleats k rest firmly upon the metallic bottom a^3 , after which the locking-

bar k^2 has its lower shouldered end fitted to the notched false bottom, and its upper end is slipped into the notch k^5 of the cleat, and, finally, the latch is dropped down over the notched cleat f^3 and the upper end of the locking-bar.

We will now proceed to describe the heater or stove B. In the accompanying drawings we have illustrated as the preferred embodiment of this part of our invention a stove adapted for consuming a hydrocarbon fluid, such as gasolene; but we would have it understood that we do not limit ourselves strictly to a stove adapted for consuming this particular fuel, as we are aware that stoves of other constructions for utilizing other substances may be substituted—such, for example, as a stove to consume either natural or artificial gas or an electrically-heated stove.

In our improved machine employing a divided receptacle one tub, A^2 , is designed for performing the work that is ordinarily accomplished by washing the fabrics to eliminate the dirt to a certain extent, and the other tub, A^3 , is to complete the work by boiling or steaming the fabrics, in order to make them pure, clean, and white. We have found that to secure these results the water in the boiling or steaming tub A^3 must be heated to a higher temperature than is required for the water in the washing-tub A^2 , and we have therefore constructed and arranged the heater B with three burners $b\ b'\ b^2$, of which the burners $b'\ b^2$ are grouped quite close together and arranged to operate beneath the boiling or steaming tub A^3 , while the burner b is arranged to operate beneath the washing-tub A^2 . These burners are similar in construction to the ordinary well-known type of gasolene-burners, or they may be of any other preferred construction, and they are so combined that one or more burners will supply a larger volume of heat to the boiling or steaming tub than the other burner supplies to the washing-tub. The frame of the stove consists of the end pieces $l\ l$ and the drip-pan m . These end pieces $l\ l$ are each cast in a single piece in the form of an open-work plate to provide a slot l' and the solid bearing l^2 , and said end pieces are arranged so that openings in the bearings l^2 are in line with each other and the slots l' coincide. The drip-pan m has its ends fitted in the slots l' , so as to be supported by the end pieces below the burners.

The end pieces are rigidly coupled together by the horizontal supply-pipe L, and this pipe is provided with two clamps $m'\ m'$, which are fastened by screws m^2 to the bearings l^2 of the end pieces and by other screws m^3 to the pipe L, whereby the pipe L serves as the binding medium to hold the ends $l\ l$ and the drip-pan in proper relation to one another. The burners $b\ b'\ b^2$ are suitably attached to the pipe L, and they communicate therewith to receive the fuel from the same. One end of this pipe L is closed by means of a plug or cap, as at n , but the other end of the pipe is

bent horizontally to form the angular arm n' , having a short upturned end n^2 , which is securely attached to the swivel-coupling N, the latter serving as the means for attaching the pipe L to the vertical pipe O in a manner to permit the entire stove B to be swung out from the receptacle A and at a right angle to said receptacle, as shown by Fig. 1, without detaching the stove from the laundry-machine, whereby the stove B may be used for other domestic purposes in addition to its primary office of heating the water in the divided receptacle. The vertical pipe O has two bends made therein at intermediate points of its length at $o\ o$ to provide the horizontal branch o' , the vertical pendent branch o^2 , and the vertical riser or upright branch o^3 . The horizontal branch o' is fitted against the end wall a' opposite from the handle or lever J' , the pendent branch o^2 is fitted in the front left-hand corner of the machine, and the riser branch o^3 is fitted in the back left-hand corner of the machine. The branches $o'\ o^3$ are held in place by means of the bracket-plates O' , which embrace the branches $o'\ o^3$ and are screwed to the end and back walls $a'\ a$, respectively. On the upper end of the riser branch o^3 is fastened the supply-tank O^2 , having the usual controlling-valve, and the lower end of the pendent branch o^2 is fastened to the swiveled coupling N. This manner of bending the pipe O enables the supply-tank to be located a safe distance from the burners of the stove and obviates the liability of explosions of the hydrocarbon fluid, and by clamping the pipe O to the receptacle at different points it is securely braced and held in position.

When the stove is used beneath the receptacle for heating the water in the tubs, we omit the top plate P (indicated by dotted lines in Fig. 1 of the drawings to avoid confusion and to more clearly show the construction of the stove) in order that the full heat from the several burners may be applied directly to the metallic bottom a^3 of the receptacle; but when the stove is swung out on the branch pipe o^2 and coupling N as a pivot center we apply the top plate P to the ends $l\ l$ of the stove-frame. This top plate is flanged to adapt it to rest firmly upon the stove-frame when the stove is used for heating irons, cooking, or other domestic purposes.

To strengthen the pipes L O and relieve the swivel-coupling N from undue strain, we have provided the hanger q , which is fastened to the receptacle A and has a horizontal foot q' in an opening in which is fitted the lower part of the pendent branch o^2 of the pipe O, whereby the foot braces the pipe O and prevents it from being twisted out of position as the stove B is swung back and forth on the swivel-coupling N to adjust it beneath or out from the receptacle A. We have also provided another hanger Q near the opposite end of the machine, the latter hanger being

rigidly fastened to the receptacle and having its lower end provided with an inclined notch q^2 , which forms a seat for the closed end of the pipe L. When the stove B is adjusted 5 beneath the receptacle, the pipe L and stove are lifted slightly, so that the end of the pipe L may fit into the inclined seat q^2 in the hanger Q, whereby the stove is suspended beneath the receptacle clear off the floor and 10 its burners are adjusted close to the metallic bottom of the receptacle to better apply the flame and heat thereto.

R R' designate the shields, of metal, which are fastened to the lower edges of the receptacle around the sides and ends thereof and 15 which are extended or projected suitable distances below the bottom of the receptacle, the shields R' at the ends of the receptacle being extended lower down than the shield 20 at the front of the receptacle, the front shield terminating above the end shields for the purpose of permitting the stove B to be swung out or in below the receptacle without hindrance from the shield. These shields serve 25 a threefold purpose—i. e., to protect the flames from the burners from drafts of wind, to confine the heat below the receptacle as much as possible, and to protect the paint or finish on the receptacle from the blistering or mar- 30 ring effects of the heat.

On the front and back or side walls a of the receptacle we apply the metallic brace plates or straps r , which are perforated to 35 permit screws to pass through the walls a and into the central partition a^2 to secure the latter firmly in place.

S S designate ordinary spigots or draw-off cocks which are soldered and riveted to the 40 metallic bottom a^3 of the receptacle, so as to communicate with the tubs A^2 A^3 to empty the water. These cocks have threaded nipples at their lower ends to enable hose-couplings to be screwed thereon for the purpose of conducting the water off to any desired 45 place of discharge.

We will now proceed to describe our adjustable wringer-support C, by means of which a wringer may be adjusted in place over the 50 partition a^2 or over the end wall a' at the end of the machine where the handle J' is applied, or the wringer may be held out of place when the cover E is lowered, all of which adjustments may be quickly and easily effected without detaching and attaching the wringer 55 proper to the machine and without requiring the attendant to lift and handle the wringer. In the preferred construction of the wringer-support C (shown more clearly by Fig. 8 of the drawings) we employ a swinging crane, 60 which consists of a straight horizontal bar or arm c and a brace c' , the latter having one end attached to the bar or arm c and being bent downwardly away from the bar, as shown. The bar c and its brace c' are piv- 65 otally attached by vertical bolts to brackets c^2 , which are fastened one below the other on the outside of the receptacle A at points about

midway between the partition a^2 and the end wall a' of the boiling or steaming tub A^3 , whereby the crane may be swung horizontally 70 to bring its free or unconfined end opposite either the partition a^2 or end wall a' of said tub A^3 . On this crane is mounted a swiveled bracket T, which consists of a yoke-shaped 75 metallic part which is placed in an upright position on the arm or bar c near the free end of the crane, and which bracket is pivotally attached to the crane by means of the bolt t , which passes through the head of the bracket 80 T, the bar c , and the brace c' , whereby the single bolt t unites the bracket, bar, and brace c' together. This swiveled bracket serves as the support for the wringer-bar U, which has one end fitted between the jaws of the bracket 85 T and is pivotally fastened to the same by a horizontal bolt t' , which passes through the jaws of the bracket and the end of the bar U to enable said bar to swing in a vertical plane, and said pivoted end of the wringer-bar has 90 a notch which forms the shoulder u , said shoulder being adapted to strike against the head or cross bar of the yoke-shaped bracket when the wringer-bar is turned to an upright position and thereby limit or arrest the swing- 95 ing movement in a vertical direction of the wringer-bar.

The wringer proper, U', may be of any preferred construction, and it is clamped or fastened in a suitable way to the wringer-bar. 100 This wringer U' may remain attached at all times to the wringer-bar U, because the crane and the bar T are adjustable in such a manner that the wringer does not interfere with the operations of the washing-machine; but 105 for the sake of convenience we employ an ordinary wringer, which, as is well known, is usually equipped with means for clamping it in place.

To hold the crane and wringer securely in 110 place when it is adjusted for use on the machine, we employ fastening devices V V', adapted to engage with the crane, one fastener, V, being arranged close to the parti- 115 tion a^2 , so as to engage with the free end of the crane when the wringer is adjusted over the partition a^2 , while the other fastener, V', is placed close to the end wall a' of the tub 120 A^3 to engage with the crane when the latter is swung around to support the wringer over the end wall a' for the purpose of wringing the clothes out of the tub A^3 into a tray or 125 other support, which may be placed upon the lever J' and its supporting-brackets. Each fastener V and V' consists of a cast plate having spaced jaws v , and in the jaws of each 130 fastener-plate is formed vertically-alined openings v' , through which may be passed a locking pin or key v^2 , which is attached to the receptacle by means of a cord or chain. The fastener is attached to the receptacle in 135 such a position that the free end of the crane-bar c (which has a vertical opening formed therein) is caused to fit between the perforated jaws v when the crane lies parallel to

the receptacle, and the pin v^2 can be readily slipped through the perforated jaws and the vertical opening in the end of the crane, whereby the crane is held in a locked stationary position on the receptacle. To adjust the wringer over the partition a^2 , the lid E is raised, and then the crane is swung horizontally until it lies parallel to the receptacle and its free end fits in the fastener V. The swiveled bracket T is turned horizontally on its vertical pivot, so that the bar U and the wringer attached thereto can be lowered or swung over the partition a^2 , the bar U resting on the partition a^2 and the free end of the bar U fitting in the notch formed between the free ends of the lining-pieces F F'. The outer end of the bar U is securely held by the bracket T and crane, while its inner end is confined by the notch in the lid E; but to securely hold the bar and wringer in place we provide the holding-plates u^3 , which are pivoted to opposite sides of the bar U and are adapted to be turned down to embrace the sides of the partition a^2 . To throw the wringer out of position, the plates u^3 are raised clear of the partition a^2 . The wringer-bar U and wringer are lifted or turned on the horizontal bolt t' until the shoulder u strikes the head of the bracket T, and then the bar, wringer, and bracket T are turned on the vertical bolt t around parallel to the tub. The bar U and wringer may stand in an upright position, or they may be turned down parallel to the receptacle; but in either position the bar and wringer are out of the way of the lid E, which can be closed down tightly over the receptacle. To wring the clothes out of the boiling or steaming tub A^3 onto a tray at the end of the receptacle, the crane is released from the fastener V. The crane, support T, bar U, and wringer are swung horizontally out from the tub and back again parallel thereto in order to reverse the position of the crane and enable its free end to be held by the fastener V', after which the bracket T is turned around and the bar and wringer are lowered over the end wall a' of the tub A^3 , the plates u^3 being adjusted to clasp the end wall a' and assist in holding the bar U and wringer in position over the end wall.

In the modified construction of our wringer-support shown by Fig. 9 we employ a stationary bar X, which is fastened in a horizontal position on the outside of the receptacle along-side of the tub A^3 by means of the brackets x , and on this bar X is fitted the slidable cross-head Y, which is adapted to be moved along the bar X. To this cross-head or slide Y is pivotally attached the casting y by means of a horizontal bolt, and this casting has one end of the wringer-bar fastened thereto, a wringer being suitably attached or clamped to said bar. The wringer-bar can be turned vertically on the cross-head to adjust the bar and wringer out of the way of the lid E, and the cross-head, the bar, and the wringer can

be moved horizontally on the stationary bar X to bring the wringer over the partition a^2 or over the end wall a' of the tub A^3 , as will be readily understood.

The operation of our machine may be described as follows: The perforated false bottoms are placed in position, the stove is adjusted beneath the receptacle, and the wringer held outside of the receptacle. The tubs A^2 A^3 are nearly filled with clean soft water and the burners b b' b^2 are then lighted. When the water boils in tub A^3 , enough warm water from the tub A^2 is dipped into A^3 to fill it nearly to the cleats f^2 f^3 , after which the tub A^2 is filled to the same height with fresh water, thus bringing the relative temperatures of the water in the two tubs to the proper points. An abundant quantity of previously-dissolved soap is then put in the two tubs, about twice as much soap being placed in the washing-tub A^2 as in the boiling or steaming tub A^3 . The washing-tub A^2 is now filled moderately full with soiled clothes, the lid is closed down on the receptacle, the pitman is connected to the handle or lever, and the lever is worked briskly for two or three minutes to work both agitators G G', after which the clothes in the tub A^2 are turned over with a poke-stick to loosen them up, and the agitators are again worked by operating the lever for a short time. The lid is now raised, the wringer is adjusted in the manner described over the partition a^2 , and the clothes from tub A^2 are passed through the wringer into the tub A^3 . The tub A^2 is then refilled with other soiled clothes, the wringer is adjusted out of the way, the lid is closed, and the lever J' again operated to work both of the agitators, so that the two tubs are in operation, the clothes in tub A^2 being washed while the clothes in tub A^3 , which have been previously washed in tub A^2 , are being boiled and steamed, and at the same time they are agitated while the boiling and steaming operations are under way. The lid E is again raised, the wringer is reversed and adjusted over the end wall a' of the tub A^3 , and the clothes from the boiling-tub A^3 are passed through the wringer upon the tray or other receptacle placed on the brackets to receive the clothes. The wringer is now swung around and adjusted over the middle partition a^2 , the clothes in the washing-tub A^2 are passed through the wringer into the boiling-tub A^3 , the washing-tub is again filled with the clothes, the lid is closed, and the operations are repeated until all the clothes have been washed. The fire is now extinguished, the temperature of the water is reduced as may be necessary, and the colored clothes, which are not to be boiled, are passed through the tubs in the manner described. As a large part of the dirt which is eliminated from the clothes settles beneath the perforated false bottoms, the colored clothes may be washed ordinarily in the same water that is used for washing the white clothes. When the washing is completed, the

water is drawn off through the cocks, the tubs
cleansed of sediment by taking out the false
bottoms and replacing them, the tubs are
again filled with clean water, and the bluing
is placed in the tub A³. The clothes may now
be rinsed by agitation for a minute or two in
the tub A². They are then passed through
the wringer into the bluing-tub A³, again agi-
tated, and then wrung out upon the tray,
the rinsing and bluing process going on at the
same time in the respective tubs. During
this entire process the wringer is not detached
at any time from the machine nor is it neces-
sary to lift by hand; but said wringer can in
a moment be thrown back out of the way of
the lid, or it can be adjusted either to the
middle of the machine or at the end thereof.
As soon as the clothes are boiled the stove B
can be swung out from beneath the receptacle
without detaching it from the machine, and
the stove can be used for ironing purposes,
cooking, or other domestic work.

We are aware that changes in the form and
proportion of parts and in the details of con-
struction herein shown and described as the
preferred embodiment of our invention may
be made by a skilled mechanic without de-
parting from the spirit or sacrificing the ad-
vantages of our invention, and we therefore
reserve the right to make such modifications
and alterations as fairly fall within the scope
of our invention.

Having thus fully described our invention,
what we claim as new, and desire to secure
by Letters Patent, is—

1. The combination of a receptacle having
separate compartments, and a wringer-car-
rier arranged exteriorly to the receptacle and
movable bodily in a horizontal direction
thereon to a position opposite an end wall of
either compartment of said receptacle, as and
for the purposes described.

2. The combination with a receptacle di-
vided by a partition into two compartments,
of a wringer-carrying bar, and means sub-
stantially such as described for supporting
said bar whereby the bar may be held over
the partition or over an end wall of the re-
ceptacle, substantially as and for the pur-
poses described.

3. The combination with a receptacle, of a
pivoted wringer-carrying bar adapted to be
turned vertically, and an adjustable support
for said wringer-bar to hold the same over
the partition or one end of the tub, substan-
tially as and for the purposes described.

4. The combination with a divided recep-
tacle, of a crane, a swiveled bracket carried
thereby, and a wringer-bar attached to said
bracket, substantially as and for the purposes
described.

5. The combination with a divided recep-
tacle, of a swinging crane pivoted to the re-
ceptacle, means for locking said crane in

either of its adjusted positions, and a wringer-
bar carried by the crane, substantially as de-
scribed.

6. The combination with a divided recep-
tacle, of a pivoted reversible crane, a bracket
swiveled to the crane, and a wringer-bar car-
ried by the bracket, substantially as and for
the purposes described.

7. The combination with a divided recep-
tacle, of a notched or recessed lid for said re-
ceptacle, a pivoted wringer-bar adapted to fit
in the notch or recess of said lid and having
fasteners for engaging with the receptacle to
detachably connect said bar to said receptacle,
and a movable support for the wringer-
bar, substantially as described.

8. The combination with a receptacle hav-
ing a transverse partition, of a reversible crane
pivotally supported in the receptacle between
one end thereof and the partition, a vertical
bracket swiveled by a vertical bolt on the free
end of the crane and supported thereon to
turn in a horizontal plane, and a wringer-bar
pivoted to the bracket by a horizontal bolt to
adapt said bar to turn in a vertical plane,
whereby the wringer-bar may be turned on
its pivotal bolt to clear the receptacle and the
bracket can be adjusted to fold with the
wringer-bar alongside of the receptacle, sub-
stantially as and for the purposes described.

9. The combination of a receptacle, pro-
vided with a notched cleat *f*³ near its upper
end, a perforated false bottom fitted on the
bottom of said receptacle and having a notch
*k*⁴, a vertical locking-bar having its lower end
fitted in the notched false bottom and its up-
per end seated in the notched cleat, and a
catch to drop over the upper end of the lock-
ing-bar and hold the same within the notched
cleat, substantially as and for the purposes
described.

10. The combination with a receptacle, of
the pendent hanger *q* attached to said recep-
tacle, a supply-pipe attached to the recepta-
cle and having its lower end fitted in the
hanger *q*, another hanger attached to the op-
posite end of the receptacle and provided with
a seat at its lower end, a heater having a hori-
zontal pipe which, when the heater is adjust-
ed below the receptacle, fits in the seat of the
last-mentioned hanger, and a swiveled coup-
ling which unites the supply-pipe and the
heater-pipe and furnishes a hinge on which
the heater may be swung out bodily from the
receptacle, substantially as and for the pur-
poses described.

In testimony whereof we hereunto set our
names in the presence of two witnesses.

JOHN JUNKIN FRANCIS.
LOUISE CUMMINS FRANCIS.

Witnesses:

JAMES B. LEWIS,
NELLIE C. SATTERFIELD.